Home Improvement Construction Production Products Online
(www.homeshop101.com)

by
Ms. Jhitsiri Patiwongpaisan

A Final Report of the Six-Credit Course
IC 6998 E-Commerce Practicum

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Internet and E-Commerce Technology
Assumption University

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Project Title	Online Home Improvement Construction Products (www.homeshop101.com)
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Academic Year	November 2003

The Graduate School of Assumption University has approved this final report of the six-credit course, IC 6998 E-Commerce Practicum, submitted in partial fulfillment of the requirements for the degree of Master of Science in Internet and E-Commerce Technology.

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ABSTRACT

The report presents a Home Improvement Construction product online store and focuses on information of E-commerce, product information and web development. The scope of this project concerns E-Commerce history and also Home improvement construction industry. The exiting industry has been compared with the purposed system of the current industry. Web site is created to promote a new market channel to gain more potential customers. This project will provide target market, marketing strategy, SWOT analysis, market trend, and also hardware and software requirements for this project as well. The financial statement as prediction income for the next five years is also provided.

This project summarizes the benefits of the proposed system for potential income increase every year because this is a new channel to expand the core business.

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I. INTRODUCTION

1.1 Background of the Project

Business is going to change more in the next ten years. Few companies are using digital technology for the new process that radically improves their function that gives them full benefits of all their employees, capability and that gives them the speed of response they will need to compete in the emerging high speed of the business world. The Internet creates a new universal space for information sharing, collaboration and e-commerce. The successful companies of the next decade will be the ones that use digital tools to reinvent the way they work. These companies will make decision quickly, efficiently, and directly to reach their customers.

This project uses Dynamic Web-Based concept via Database Management System (DBMS) and Hypertext Markup Language (HTML) together with a Client-Server architecture technology.

The system provides information about home improvement construction products and also some suggestions on how to decorate your home with the technician's skill. Moreover, there are features to create community among visitors in chat room, web board and guest book.

In addition, the system includes a membership system so the company will be able to keep track of its customers. This will allow the company to have a collection of valuable information.

1.2 Objectives of the Project

The objectives of the project are as follows:

(1) To establish an exiting web site to be a distribution channel to sell the company's products online

(2) To expand marketing channel for the company

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(3)   To create database of customers and products

(4)   To analyze and collect behavior of its potential customers.

(5)   To provide up-to-date, effective and accurate information by using Database Management Technique.

(6)   To get the collection of member information for further promotional programs.

1.3 Scope of the Project

The project started from the evaluation of the potential customers who are looking for a complete store when thinking about home decoration. In addition, the evaluation of existing online in the market is required to define the details of the products offered. Therefore, the project focuses on the major parts of the online application for home improvement construction products for retail sales including the follow areas:

(1)   Creates Cyber store Web Page

(2)   Area for the banner of its sponsors

(3)   List of products available

(4)   Registration system of new members including sign in and sign out

(5)   Detailed information about products

(6)   Product news

(7)   Promotion

(8)   Back office or administration system

1.4 Deliverables

Deliverables for this project will be as follows,

(1)   A final report will be delivered on the due date and it covers the scope of information mentioned earlier.

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(2) A website will be designed and developed to show the concepts of new design for home improvement construction information and online services. It will be applied in the final report.

II. LITERATURE REVIEW

2.1 Background of E-commerce

Before the staring to get into a complete discussion of e-commerce, it is helpful to have a good mental image of plain old commerce first. If you understand commerce, then e-commerce is an easy extension.

Merriam-Webster's Collegiate Dictionary defines commerce as follows:

commerce n [MF, fr. L commercium, fr. com- + merc-, merx merchandise] (1537) 1: social intercourse: interchange of ideas, opinions, or sentiments 2: the exchange or buying and selling of commodities on a large scale involving transportation from place to place 3: sexual intercourse

So commerce is, quite simply, the exchange of goods and services, usually for money. Many people see commerce all around them in a million of different forms. When buying something at a grocery store or at Wall-mart, they are participating in commerce. In the same way, if you cart half of your possessions onto your front lawn for a yard sale, you are participating in commerce from a different angle. If you go to work each day for a company that produces a product, that is yet another link in the chain of commerce. When you think about commerce in these different ways, you instinctively recognize several different roles:

Buyers - these are people with money who want to purchase a good or service.

Sellers - these are the people who offer goods and services to buyers. Sellers are generally recognized in two different forms: retailers who sell directly to consumers and wholesalers or distributors who sell to retailers and other businesses.

Producers - these are the people who create the products and services that sellers offer to buyers. A producer is always, by necessity, a seller as well. The producer sells the products produced to wholesalers, retailers or directly to the consumers.

It seems to be the high level, commerce is a fairly simple concept! Whether it is something as simple as a person making and selling popcorn on a street corner all of commerce at its simplest level relies on buyers, sellers and producers.

The growth of Internet Technology has made changes so it affects many products and services many businesses are going online selling and buying. There is one final point for e-commerce that needs to be made. E-commerce allows people to create completely new business models. In a mail order company there is a high cost to print and mail catalogs that often end up in the trash. There is also a high cost in staffing the order-taking department that answers the phone. In e-commerce both the catalog distribution cost and the order taking cost fall toward zero. That means that it may be possible to offer products at a lower price, or to offer products that could not be offered before because of the change in cost dynamics.

However, it is important to point out that the impact of e-commerce only goes so far. Mail order sales channels offer many of these same advantages, but that does not stop your town from having a mall. The mall has social and entertainment aspects that attract people, and at the mall you can touch the product and take delivery instantly. E-commerce cannot offer any of these features. The mall is not going to go away anytime soon.

E-commerce is one of the most visible examples of the way in which information and communication technologies (ICT) can contribute to economic growth. It helps business improve trade efficiency and facilitates the integration of developing firms into the global economy. It allows businesses and entrepreneurs to become more competitive. In addition, it provides jobs, thereby creating wealth.

2.2 The Lure of E-commerce

The following list summarizes what might be called the "lure of e-commerce":

(1) Lower transaction costs - if an e-commerce site is implemented well, the web can significantly lower both order-taking costs up front and customer service costs after the sales by automating processes.

(2) Larger a purchase per transaction – for example www.amazon.com offers a feature that no other normal store offers. When you read the description of a book, you also can see "what other people who ordered this book also purchased". That is, you can see the related books that people are actually buying. Because of features like these it is common for people to buy more books that they might buy at a normal bookstore.

(3) Integration into the business cycle - A Web site that is well-integrated into the business cycle can offer customers more information than previously available. For example, if Dell tracks each computer through the manufacturing and shipping process, customers can see exactly where their order is at any time. This is what FedEx did when they introduced on-line package tracking - FedEx made far more information available to the customer.

(4) People can shop in different ways. Traditional mail order companies introduced the concept of shopping from home in your pajamas, and e-commerce offers this same luxury. New features that web sites offer include:

The ability to build an order over several days

    (4.1)   The ability to configure products and see actual prices   .

    (4.2)   The ability to easily build complicated custom orders

    (4.3)   The ability to compare prices between multiple vendors easily

    (4.4)   The ability to search large catalogs easily

    (5)   Larger catalogs - A company can build a catalog on the web that would never fit in an ordinary mailbox. For example, Amazon sells 3,000,000 books. Imagine trying to fit all of the information available in Amazon's database into a paper catalog.

    (6)   Improved customer interactions - With automated tools it is possible to interact with a customer in richer ways at virtually no cost. For example, the customer might get an email when the order is confirmed, when the order is shipped and after the order arrives. A happy customer is more likely to purchase something else from the company.

2.3   Background of the company

Since e-commerce is usually at the heart of an online business, in addition, the number of people who use the Internet is increasing every day so doing the website online is one of the distribution channels to improve market sharing and increasing revenue of the company. TPP is home improvement retailer in Roi-Et, which caters to both do-it-yourselfers and professional customers who serve the home improvement construction and building maintenance market segments. The company is credited with having revolutionized the home improvement industry by offering an unparalleled selection of products and services under one roof. Today, its stores stock up to 35,000 different kinds of building materials and lawn and garden products. Our unique services

include free in-store clinics for honing home improvement skills as well as design and decorating consultation, truck and tool rental, home delivery, free potting and many others.

The internet is the fastest growing source of mail order sales. Now TPP is planning to launch webpage called www.homeshop101.com to be another distribution channel to earn more market share and more income. It is very important to do the first set up in the website because we have a good image in retail store for 40 years. It will be a new changing in our business model. Therefore, we have to be concerned about design, image and disclosure requirements in the website. In Thailand most of the websites provide supplier lists and product information but do not focus on online service. Customers normally come to the shop and make a order, some of the products be delivered. The marketing plan is of crucial importance for web-based businesses. We need to consider plenty of potential customers and how we will market our business at a very early stage in planning business.

III. HOW E-COMMERCE SYSTEM WORKS

3.1 Building an E-commerce Site

The important things for a website in building an e-commerce site include:

(a) Suppliers - this is no difference from any normal store or a mail order company has. Without good suppliers you cannot offer products

(b) Your price point - a big part of e-commerce is the fact that price comparisons are extremely easy for the consumers. Your price point is important in a transparent market

(c) Customer relations - E-commerce offers a variety of different ways to relate to your customers. E-mail, FAQs, knowledge bases, forums, chat rooms. Integrating these features into your e-commerce offering helps you differentiate yourself from the competition.

(d) The back end: fulfillment, returns, customer service - These processes make or break any retail establishment. They define, in a big way, your relationship with your customer.

When thinking about e-commerce, the main consideration these other desirable capabilities are

(a) Gift-sending

(b) Affiliate programs

(c) Special Discounts

(d) Repeat buyer programs

(e) Seasonal or periodic sales

3.2. E-commerce Site for small businesses will be focusing on:

(a) Looking for cost-effective ways to promote your products and services.

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(b)   Exploring various sales and marketing channels to gain a wide market exposure.

(c)   Increasing your sales but not being able to afford to employ an army of sales and marketing personnel.

(d)   Educating the market about your products and services.

(e)   Offering a professional presence of your business to your customers.

A business to business eCommerce solution in a web site can provide the answers and become a sales force on a 24/7 basis to potential customers. An eCommerce business web site is just as essential to even small business as a telephone or fax machine. Primary benefit of an eCommerce web site is to create online sales and marketing channel. The owner can measure the effectiveness by total monthly sales compared to web site monthly costs.

Even if the site does not generate revenue through online sales on eCommerce business web site the indirect benefits alone can heavily outweigh monthly web site costs. For example, think of the wide market exposure you obtain by having your own web site. Your potential customers can research your product through your eCommerce web site and then choose to purchase that product at your location of business or over the telephone.

3.3   Current problem of eCommerce web site

As things stand today, both buyers and sellers simply cannot trust their anonymous counter-party at the other end of the transaction. Surprisingly, this lack of trust in the broad sense has received only scant attention, eclipsed by stories of viruses usurping the Internet. The fact is viruses are only one of many trust-violating icebergs that must be avoided if our eCommerce ship is ever to come in.

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Trust can be violated, knowingly and even unknowingly, at many different stages of a transaction. A solid chain of trust must be built link by link throughout all the various steps in an international transaction, from knowing the identities of the trading partners, to understanding how different cultures and languages might affect a customer's understanding of the goods being offered, to information privacy, to dealing with a lack of international legal recourse, to payment issues, to final delivery of goods as ordered.

The huge promise of B2B eCommerce is at risk, not because of antitrust issues, but because of the lack of confidence in trading on-line. In this respect, increased trust and confidence translates into increased competitiveness. Without trust, though, competitiveness is diminished.

Building a solid chain of trust means creating and gaining adoption of universally recognized B2B eCommerce standards. A range of trust-building services, now in only embryonic stages must advance, be integrated and standardized. What's needed are digital certifications, joined to onsite inspection and verification companies, linked to insurers, joined to credit rating agencies, tied to legal systems all functioning instantaneously and internationally.

Inevitably, goal is the highlight issue of the need to build online confidence and to start the process of creating B2B eCommerce standards that increase trust - standards which can be voluntarily developed and driven by the private sector which in the end seeks the resultant benefits. Standards that increase trust for everyone -- buyers and sellers of all sizes, wherever they are in the world - enables everyone to trade with confidence. Thus, trust online increases competitiveness online. We have sought out those like-minded B2B ventures who share in the belief that eCommerce and B2B will only succeed if the customer has trust in the medium of eCommerce and the service we

offer of online B2B transactions. There is no question that the impact of the Internet on business into the new millennium will be profound and nowhere more so than in global trade. The Internet is opening up direct global access to buyers and vendors, many of whom have a mere basic understanding of how B2B works and still others who have never traded internationally. Generally, a buyer will have no prior trading experience with the vendor and will be seeking to have quality non-conformance risk-managed at the source. In plain, vendors want to use the Internet as a sales channel and buyers want to ensure that the goods they buy online are in the quantity and condition they require.

According to SGS, how to bring trust to the marketplace and to create transparency so that buyers and vendors can make informed decisions which is the main important things to doing online business as below:

(a) for *Buyers* we reduce the risk of business transaction failure by providing detailed information so businesses can make informed decisions. This includes providing product and vendor information, providing independently drawn product samples and visually inspecting goods to add confidence and peace of mind in the transaction.

(b) for *Vendors* we offer an independent and continuous assessment of their ability to e-trade. We verify to what degree the vendor is complying with their announced product features and assure the reliability and capability to perform successful eBusiness transactions to buyers who might not otherwise consider the vendor's offer. Vendors thus gain the means to project third-party verified trust and credibility into the marketplace.

(c) for *eMarketplaces* SGS stabilizes B2B transactions by verifying trust in marketplace vendors to enable seamless transactions and enhance highly

sought after liquidity. Thus, the new economy maintains its transparent classification of vendors based on objective quality and trust criteria.

3.4 The Clear and Conspicuous Requirement

There is no set formula for a clear and conspicuous disclosure. In all media, the best way to disclose information depends on what information must be provided and the nature of the advertisement. Some disclosures are quite short, while others are more detailed. Some ads use only text, while others use graphics, video and audio. Advertisers have the flexibility to be creative in designing their ads, so long as necessary disclosures are communicated effectively and the overall message conveyed to consumers is not misleading. Even though consumers have control over what and how much information they view on Web sites, they may not be looking for or expecting to find the disclosures. Advertisers are responsible for ensuring that their messages are truthful and not deceptive. Accordingly, disclosures must be communicated effectively so that consumers are likely to notice and understand them. The company also has to review the online ads and advertisers should adopt the perspective of a reasonable consumer. They also should assume that consumers don't read an entire Web site, just as they don't read every word on a printed page. In addition, it is important for advertisers to draw attention to the disclosure, making the disclosure available somewhere in the ad so that consumers who are looking for the information might find it doesn't meet the clear and conspicuous standard.

IV. MARKETING ANALYSIS

4.1 Market Target

Our target is emphasized on our potential customers and also loyal customers. Every customer who wants to have a good product, fast service, for home improvement construction can surf our web site offering what they want any time and any where and they can use the net. TPP expand our target market to another province through our web site all days.

4.2 Market Strategy

At the beginning of web site launching, we will emphasize creating the brand awareness by using advertising online. After the web site is well known, TPP will maintain our current shop owner members by providing the benefits and meanwhile TPP will attract the new shop owners to be our members. Expanding the current business is our objective and marketing strategy. We will communicate to our retailer owners as well as the consumers who purchase the company products online.

4.3. S.W.O.T. analysis

A SWOT analysis measures a business unit or proposition, TPP analysis measures the market potential and situation, particularly indicating growth or decline, and thereby market attractiveness, business potential, and suitability of access - market potential and 'fit' in other words. TPP analysis uses four perspectives, which give a logical structure, in this case organized by format that helps understanding, presentation, discussion and decision-making of customer.

SWOT analysis is an important strategic planning tool that helps us to compare internal organizational strengths and weaknesses with external opportunities and threats. SWOT is an acronym for strengths, weakness, opportunities, and threats.

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Strengths

(1) The name TPP represents the integrity of the company and reputation, since the company has been established for more than 40 years. So the name of domain name is representing our location and our products itself.

(2) www.homeshop101.com can be conducted from the convenience for our customer to shop at home 24 hours per day and seven days per week.

(3) TPP is the biggest home improvement product store in Roi-et

(4) TPP doing dynamic website so the information on the web is up to date

(5) TPP create comparison-shopping online of www.homeshop101.com is made easier because now customer do not have the physical hassle of going from store to store looking for bargains. Now it is as simple as a click here or there.

(6) TPP can put many various items to our web site because there are no limited spaces not like in our store where we have limitation of area to introduce our new products. Once TPP design our web site we can show our new products and get feed back from visitor. So we will take that respond and keep it to analyze and prepare to show this product items in our store if there are many requests from our customers.

(7) To show product information via www.homeshop101.com saves time and cost to do brochure also it will be real time change so it is easy to insert new products and very easy to delete unavailable items or out of stock.

(8) The web will show products looks and description also it will be the advantage for our potential customers to know product details before making buying decision.

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(9) TPP design www.homeshop101.com uses the wonderful and colorful motion to increase customer's attention it is better than the competitor which show the product image on the brochure

Weaknesses

(1) Customers have limited knowledge of the new technology by purchasing online

(2) Staff are lack of experience in doing business online.

(3) Lack of work experience for web maintenance.

(4) Lack of experience, when the customers want to purchase the goods, they have to pay for transportation cost and it takes time.

(5) www.homeshop101.com cannot have payment online because the trust of payment transactions

Opportunities

(1) There are no competitors now who launch this kind of web site

(2) Free advertising by various search engines.

(3) The first web site online store which sells home improvement construction in Roi-et

(4) New market opportunities to share because doing the web is world wire so TPP are not limited to our customers in the province only.

(5) Because the number of Internet user is growing there are new opportunities for TPP to get potential customers in new business channel

(6) New market channel to sell home instruments directly to customers.

(7) New experience for customers to be able to compare the products and prices so it could be both site of weakness and opportunity if our web is not

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attractive but it is easy to find the products that our customer are looking for.

Threats

(1) Security and privacy can be a threat since hackers can steal information.

(2) TPP has many old consumers who do not have an understanding of information technology and refuse to try the web

(3) Customer Interaction is limited. Some people need the assurance of a product in person.

The Proposed System

SWOT Analysis is determined from using web-based technology as follows:

Strengths

(1) Consumers have more choices and it is easy to find our location and all the available products.

(2) Information knowledge based of home improvement construction products

(3) Our web site can expand the current distribution channel to sell online

(4) Our web site can be the information exchange centre to these who are experts in home improvement.

Weaknesses

(1) If customer have bad experience about our store, they can go to our web site to put some comments, which are shown to all the visitors so it may cause our potential customers to have bad impression before coming to shop at our web site

(2) Promotion of the web site may be difficult and cannot guarantee success.

Opportunities

(1) The site can be the web portals for home improvement construction

(2) Expand the current store

Threats

(1) Home improvement industry is limited to distribution of the products and lifetime of products due to the distance of the buyers

(2) Preserve the products is challenging task

(3) Customers from our site may feel reluctant to buy products due to the payment security policy.

4.4 Market Trend

The current home improvement constructions are attractive in the market. Some shop owners are looking for the complete product in one distributor. As a result, many TPP resellers come to our store because the company has many kinds of products to provide to customers. In addition, they like to finish shopping in one place. If they come to our web site www.homeshop101.com or come to visit our store they will find many kinds of home improvement construction products. TPP main target is to sell in Roi-et province and neighbor provinces.

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4.5   Web Site Planning is the most important part of developing and launching a web site. Without the proper structure, navigation and contents all your web site design and development efforts can go down the drain and most of all is to market the web site to be worldwide.

Here are some of the features for an online store:

(1)   Customer accounts

(2)   Customer address books (other shipping destinations)

(3)   Order history

(4)   Temporary (not logged on) and permanent (logged on) shopping carts

(5)   Search catalog for products or manufacturers

(6)   Product reviews by customers

(7)   E-mail notifications

(8)   For checkout procedure

(9)   Secure transactions with SSL

(10) Number of products in each category are shown

(11) Bestseller lists

(12) Display what other customers have purchased (relating to the current product displayed)

E-Commerce has a built-in, web-based administrator which gives you total control over our store - here are just a few of the features of the online administrator:

(1)   Designed for user-friendliness

(2)   Add/Edit/Remove categories, products, manufacturers, customers, and reviews

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(3)   Categories-to-categories structure

(4)   Statistics for products and customers

(5)   Dynamic product attributes

(6)   Tax zones, classes, and rates

(7)   Configuration parameters in database for remote editing

(8)   Payment and shipping modules

(9)   Decide what to display (and the order) in the product listings

(10) Backup tool

4.6   Home improvement construction products

(1)   Appliances

(2)   Books and Plans

(3)   Cabinets

TPP has picked out the perfect cabinets for customers who are ready to choose cabinet hardware. Or maybe you want to update the looks of your cabinets. Many decorative styles of hinges, knobs and pulls are available in www.homeshop101.com

(4)   Cleaning Supplies

(5)   Doors and Windows

Door is the first thing people notice when they come to your home. It makes a statement and sets the tone for the rest of the house. Is your door sending the right message? If not, let us help you select the right door for your home. You will learn the key terms you need to know as well as different materials available for doors.

(6) Electrical goods

One of the most economical ways to make your home safer and to highlight architectural features and landscaping is to install low voltage outdoor lights or solar lighting. Installing low voltage lighting or solar lighting is an easy project. No special skills or tools are needed and most installation can be done in less than an hour using only a screwdriver. Low voltage systems are shock-less and safe for use around children and pets.

(7) Flooring

Flooring materials are more varied than ever before, offering a combination of fashion and function. But all those attractive new options might leave you feeling a little confused about what best suits your needs. If you want to install new flooring but aren't sure what kind, keep reading to understand some of the practical and aesthetic factors that should influence your decision.

(8) Hardware

(9) Heating and Cooling

(10) Home and Décor

A faux tortoise shell finish can be applied to furniture, picture frames or nearly any other surface. It is mostly seen on furniture and smaller objects. Naturally occurring tortoise shell exists in a variety of colors and designs, but most color combinations are in the red, black and burnt orange color families.

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(11) Home organization

A well-organized closet makes it easier to locate the clothes and shoes you need. Look at all the styles of shelving and components available to see which one will suit your needs. You will likely be choosing between three materials: coated wire, wood and melamine. Wire products are less expensive and are easily customizable with accessories and add-ons. Solid wood shelving wins accolades for aesthetics, but it costs more and can require more skill to install. Melamine is similar to wood, but is less expensive. Examining all the choices may even give you some creative inspiration, prompting you to regroup your things and measure again.

(12) Lawn and Garden

A garden gate is more than just a door. It symbolizes a transition from the "outside" world to the other world in your own backyard. Whether dressing up an existing gate or adding a new one fit the style to the house and the landscape and make sure the gate is secure. A garden gate should reflect and convey the philosophy and purpose of the garden. Openness can be conveyed by pickets or wrought iron. If the desire is for privacy or to give an air of mystery, make sure the gate is solid. Gates can blend in quietly or make a bold statement. A bright eye-catching color can liven up a landscape design, especially in darker winter months.

(13) Lighting

The colors in your living room complement each other perfectly. You've arranged the accessories just right, and the furniture is comfortable and attractive. But the room still lacks the inviting atmosphere you imagined. Have you neglected the lighting? Lighting is an important element in home décor. It not only highlights

our surroundings, but also enables us to perceive color and texture. You've spent time selecting colors, furniture and accessories; now use lighting to maximize their impact. This how-to will give you some general guidelines about creating lighting schemes and supply you with ideas for every room in your house.

(14) Lumber and Building

Have you ever felt confused when you are ready to start a woodworking project? You are not alone, but it is not as hard as it seems. Woodworking really can be easy and a whole lot of fun.

(15) Outdoor power equipments

You won't find a tool with more power per inch than a chainsaw. With that power comes a need for extra attention to safety. All of the new and efficient safety features do not replace training in correct saw use, proper cutting technique, caution and common sense.

(16) Paint

Painting can be a chore, but with the right applicator, the job is a breeze. Choose from brushes, rollers, paint pads, and sprayers.

(17) Plumbing

In most plumbing systems, shutting off the water to one leaky pipe means shutting off the whole system. PEX (Crosslink Polyethylene) systems, unlike other plumbing systems, allow you to shut off the water to a single fixture within the home, and can greatly reduce the inconvenience of plumbing problems.

(18) Safety and Security

According to the National Safety Council, 7 million Americans suffer disabling injuries each year and another 28,800 die as the result of injuries sustained at home. Do your parts to keep from being a statistic by making sure that your home have the proper safety equipment and that your family knows how to use it.

(19) Tools

People spend a good deal of time searching for the right tools, comparing features and functions, deciding what tool best suits their needs. They also take time to maintain those tools, keeping them operating safely and effectively. But, one often overlooked aspect of tool care and maintenance is storage. Properly stored tools are less prone to damage and easier to locate when you need them.

V. THE PROPOSED SYSTEM

5.1 System Specification

For the new system, TPP has conducted a survey in order to summarize all the user's requirements. The following is a typical text requirement specification for the online application written by the firm's survey

(1) This system is available for targeted customers who are searching for the product's information through the net

(2) This online application is E-Commerce system

(3) Back Office System or administration system is available to manage information that are the site and provide functions for the administrator to adjust database by the use of SQL directly form the administration menu

(4) The administration system enables online and can easily create, update, and delete information about basic data, impression and promotion lists

(5) The system is able to create reports in each transaction within a period of time such as purchasing transaction.

(6) This system includes Guest Book and Web board to create more relationship among visitors and members

(7) The system can support both Thai and English version

(8) The system can run on all popular browsers, Microsoft Internet Explorer etc.

(9) The system is using Client-Server architecture.

(10) The interface of the site as well as the administration area must contain a friendly graphical user interface (GUI) and communicate well with instructions to explore the site easily.

(11) Area for other services will be created to allow other plug in applications or advertisements

5.2   Hardware Requirement

The system design was created to meet all the user's requirements as defined above. The Online Application for home improvement construction retail sales was designed under Client-Server architecture. The design phase expands and details the analysis phase by taking into consideration all technical implications and restrictions. The purpose of the design is to specify a working solution that can be easily translated into programming code, such as a database, a user interface, communication, devices and more.

Hardware Requirements

This online application needs the Web server online via the Internet on which more than 500 prospects may simultaneously anticipate. Also this server has been initially projected to fulfill multi-purpose of Operation System, Web Service Server, and Database Server though the architecture of 3-tier client/server should be applied and the distributed server could be one of those alternatives. However, the additional equal-qualified servers would be clustering for further enhancement. For instance, the hardware requirement must contain enough efficiency in specification, so the service application program will continue to run smoothly. The hardware requirements for server are listed below:

Table 5.2 Hardware Specification

Hardware	Specification
Main board	INTEL D845PESV DDR 333
CPU	PENTIUM4 2.40BGHz
Hard disk	MAXTOR 80/7200
Memory/RAM	KINGTON 512/333
CD-Rom Drive	SONY 52X
Key board	104 keys Thai/English
Mouse	Standard mouse PS/2
Display card	ST-LAB GEFORCE4 MX 440 64 MB. DDR TV OUT
Monitor	SAMSUNG 763 MB 17 (FLATRON)

5.3 Software Requirement

For the network operating system. Software requirement must be based on Internet online performance issue and security and ease of for administrative and significantly defined on lower Total Cost of Ownership. Then the graphical user interface software is pre-determined on Microsoft Window2000 Server and Workstation. Since MS2000 Server provides a bundle of free Internet service application and server also the client/server model of which several development tools are powerful to implement could do development easily. However, all report documents could be accomplished through the web processing, so report generator program is not required yet. The overall Software requirement are shown in Table 5.3

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Table 5.3 Software Specification

Software	Specification
Operating System	Microsoft 2000 Server Professional
Operating System	MS SQL Server
Application Software	Adobe Photoshop 9
Application Software	Microsoft Office 2000 for work station
Application Software	Macromedia Dream weaver
Browser	Microsoft Internet Explorer 6

5.4 Security and Control

Security concern is very important for Internet application. Besides that, the allowance to a large number of visitors accessing the server resource would raise security flaws. Moreover, Internet browser could not protect the circumstance of re-enter or re-submission on a particular page and get duplicated process for increment amounts.

Hence, the major security and control

(1) System Security and control

The web service will run on Window 2000 Server environment. When a client has an access to the Server, remote user is given and access to local hard disk resource by creating shared directories. So the player must be set for User Right Access on which Permission control required a particular directory basis. MS 2000 Server security system is as follows:

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(a) Directory and File Resource Security

Any directory and file system must be shown as Window file system, which protects its resources, including files, printer, and applications by controlling access to them.

(b) Directory and File Resource Control

For each resource to be protected or secured, the resource must be accessible to authorized users and inaccessible to unauthorized users. Windows2000 protects its resources by:

(1) Access Controls lists

(2) Access Control Entries

(3) Service Management is the management of the true components of Highly

(c) Full back up both of database and system

(2) Data Security and Control

The database was designed to run on MS SQL server 7.0. The user has to be assigned User ID and corresponding password to have the right to access database

(a) Data Control

Database Management System must be backed up every day, so it could be recovered of there is any problem occurring such as indexing damage.

(3) Application Security and Control

In the web development, all users could manage their account information by using their login and password. The permission will be granted or denied for each

user. The administration page must enable authorized users and disable unauthorized users.

(4)   Application Control

All web pages that are concerned about security issues need to pass the identification internally. After all, user may buy or do the activities only to enter their user account and password.

5.5   System Cost Evaluation

The cost of exiting system includes manpower cost, hardware cost and software cost.

5.6   Website Hosting

Among the web hosting investigation, we found that Thaiwebhosting is the most reliable and price competitive compared to the other web hosting in Thailand. Thaiwebhosting provides webpage hosting and space for rent on the main server so those clients can store their webpage, database and customer information securely and confidentially. A network system enhances productivity in conducting business online as well as the capacity to reach customers through a strong online presence. Additionally, Thaiwebhosting tracks client statistics, including website "hits" and account information.

Feature of Service:

(1) High-speed internet connectivity through Thaiwebhosting network because they connect to backbone of core internet exchange in Thailand.

(2) Data backup and recovery service

(3) Load balancing system maintains network stability

(4) Email address service

(5) Humidity and temperature controlled environment, 24 hours a day

(6) Key card identification required for facility access, plus camera surveillance for maximum security

(7) Raise floors and brace rack

(8) Firewall and intruder detection

(9) 24-hours system monitoring by experienced network professionals

(10) UPS electricity and generator backups to prevent loss caused by power outages

(11) Infrastructure supports Ethernet connectivity at a speed of 10/100 Mbps

5.7 Web Design

Web design isn't as easy as it's made out to be. Generally, business sites designed by amateurs tend to look, well amateurish. If TPP can afford it, it's definitely best to hire a professional to do the initial design for the site. It will save time, and let you concentrate on planning the business. It will be easy to hire a web designer is on the recommendation of someone who has used him or her before. If this isn't possible, then at least have a look at some of the designer's previous work. If web cannot afford to have the site designed for you, with a little care it's possible to avoid most of the common mistakes.

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As we already design the managed content to manage website because according to the web we have many products to change and price update almost every month. So we design to do dynamic website and we do not need to invest more employ to change our website. The first investment is only create program development to manage every icon or information on the web it's allow web master to change product item, price list and promotion also.

Managed Content provides a quick and simple way to edit Web pages. Requiring nothing more than your Internet Explorer web browser, it's so easy to use that even beginning Web surfers can update Web pages instantly and effortlessly all without knowing HTML. Just click a link to open a full-featured editor, complete with tools to easily insert bold, Italics, hyper-linked text, and more. Click the Update button to instantly update your website. Incorporating modern security features and password protection, Managed Content works on any website, and needs no software installation on your website or your personal computer. Available with either a single or a graduated payments plan, Managed Content is licensed on a per-website basis.

TPP develops its web site by employing a designer because it saves time to finish the web site faster and also we have no experience to do design so it is eases to give this job to the professional who always does it on HTML, Flash, JAVA, JavaScript, PHP, CGI, and Perl. This service also includes graphic and animation work. Moreover, for the service of Thaiwebhosting, it provides template to create a web site and also some of recognized programming capabilities such as HTML for new web site, shopping cart and form mail also.

Apart from this, web designer will be responsible for in web maintenance which involves upgrading the existing website, saving time and trouble of keeping up with

ever-evolving technological improvement and alterations. The term is prepared to help update and modify website so that the site maintains a dynamic and "current" feel.

5.8 Home Improvement Construction Selling Online

(1) First stage

For the initial stage for customers to purchase online, we will develop the program to receive the customer's order directly to the shop and our staff will prepare for the purchase when they receive or accept the customer purchase online

(2) Second stage

After staff are ready to use the e-commerce online, we will establish the center to distribute the products to the customers. Therefore, this will create the revenue to the shop because once our customers get used to do shopping online it saves time to go out and it is easy to recheck the order.

(3) Final stage

We will expand the customer's base to other province. So our customers around the world can order via website. This is our vision to expand the business.

Features our eCommerce applications typically offer include:

(a)   Online customer accounts

Allow customers to create their own account details in a secure environment.

(b)   Save and load shopping baskets

Allow customers to save most common orders or gift ideas.

(c) Dynamic product promotion

Promote best sellers, special offers, latest and coming soon items, promote bargains and new products.

(d) Stock level notification

Allow customers to back order out of stock items. Keep track of stock levels.

(e) Gift Certificates

Promotion deals and gift ideas for customers.

(f) Web based customer and order management systems

Manage your eCommerce website anywhere anytime.

(g) Customer email notification

Keep customers up-to-date on their order. Maintain the customer relationship.

(h) Secure transaction processing

Security and safety maximizes customer confidence in your products.

Getting users familiar with an application is a critical task. It doesn't matter how powerful your software is. If the users don't understand how to interact with its functionality it has failed in its job. This is where Usability testing comes in.

Usability is the measurement of the quality of a user's experience when interacting with a product or system such as software, computers, TVs, mobile phones, or any other device that we need to use.

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There are several factors that affect the user's experience:

(a) **Ease of learning**

How long does it take a user who has never seen the user interface before to familiarize themselves with its operation?

(b) **Efficiency**

Once the user learns how the system works, how easy is it to use?

(c) **Memorability**

Can the user easily remember how to use the system?

(d) **Error**

Do users make lots of mistakes using the system? How bad are the problems and can the users easily overcome them?

(e) **Satisfaction**

Do users like the system?

For a website these points are often overlooked, resulting in disastrous consequences. If users cannot get to the information they are looking for or get lost they will leave your website. Websites with bad usability have often contributed to a company's customers feeling disappointed in the services offered by the company and its brand. This damages customer loyalty and can be detrimental to new business.

As part of our development processes we have staff who test systems to make sure they adhere to best practice for usability as well as ensuring a high standard of quality control.

Cost and Benefit Analysis

Cost and Benefit analysis is important for the business set up. This projected model helps us to estimate the cost and the benefit that will be in the real business.

The Proposed System Cost Estimation

Cost or expense that will occur on the business models is as follow;

(1)   Computer Hardware

(2)   Application Software

(3)   Web Design

(4)   Domain name registration

(5)   Web hosting fee

(6)   Salary

(7)   Maintenance cost

(8)   Office supplies and Miscellaneous

The Proposed System Benefit Estimation

(1)   Banner revenue

(2)   Selling online profit

(3)   Information gained from the system could contribute value-added to the company in the future.

(4)   To impose discipline for all of the staffs and management throughout the system.

(5)   To forecast or improve management planed activities.

(6)   To get more current and accurate information for management and plan for the future

(7)   The employees are to operate effectively and efficiently.

(8)   The break even point analysis can define that the cost of proposed is higher than the cost of manual system but in the future there is the opportunity to have more profit to cover all investment of developing the proposed system.

VI. PROJECT IMPLEMENTATION

6.1 Overview of Project Implementation

Project implementation is the important phase of development. This project can be divided into 3 main parts as follow

(1) To analyze the existing system, in order to identify the advantages and disadvantages of creating the new web site of home improvement construction store and its application, and define the development of the new system.

(2) To use all the analysis data to design the new online application

(3) To set up some prototypes of the project in order from the trial and error and steps to implement the whole system

6.2 Program Testing

Program testing is very important in program development. The site online comprises of HTML, JavaScript, PHP, CGI-Perl in the whole site. The completeness of program running is very important. Therefore, careful checking is a must.

Before the project started, the site name www.homeshop101.com is registered and when the project is finished, the company sets a working group in order to test the online application for our retail sales to make sure that the system works. Then, the new website was posted on the Internet and the operation team together with the prototype system manages to test the system so that the company can run its operation before the formal launching to its potential customers.

If there are some mistakes during the system process such as some input data does not updated properly in the database system and the pictures of the products cover link to the wrong data from the database, so the programmer has to be ready to correct it.

Testing of specific program, subsystems and total systems is essential to quality assurance. System and interfaces testing is done before the system is actually used. The major issues which should be considered are:

(1) Testing individual program was completed during the programming task by the development team, program testing concentrates on the programs themselves in an attempt to make sure that each program works properly

(2) Data testing consist of running a program which appears to be working correctly with sample data.

(3) Link testing tests the upstream and downstream feeds between different programs and program modules.

(4) Module testing is the process of testing the individual module that makes up the work program.

(5) User acceptance testing: it is users' responsibility to make their own data to test the system to meet the requirements.

(6) System testing ensures that all the programs that make up the new system work together.

6.3 Promote the site

In order to make the site well known to public, homeshop101 online will set up the promote website program

(1)   Submit the site to Search engine in portals site such as www.sanook.com, www.siamguru.com, www.mweb.co.th and www.google.co.th.

In the eyes of search engines, the more other websites point or link to your website, the more popular your website is viewed as. We believe a popularity criterion is the hardest to achieve. If let us do the content, the popularity criteria is resolved. Basically that's how branding is achieved. We will also look to see who is linking to our competition (here is where competitive analysis helps) and we will ask them to link to us too. We will do it the right way. By building links, it can help improve how well our pages do in link analysis systems. The key understands that link analysis is not about "popularity." In other words, it's not an issue of getting lots of links from anywhere. Instead, we want links from good web pages that are related to the topics you want to be found for. That is why we always build a "Links" page for the website and approach other websites in order to get the listed on other sites. This will help drive traffic from their sites and also improve website standings in search engines.

(2)   Link from other's site

In order to get more people come to our site, we can exchange links with other websites which have similar or different contents

(3)   Banner exchange

Allow us to custom-design advertising banners, static, animated, or interactive (HTML, Flash, etc.), developed using proven design principles, to attract more visitors to our website. What distinguishes should work from many other offers? The answer is simple and clear - we design CUSTOM banners according to your requests and what is

important we never use templates. We develop banners taking into account your audience, our target group, banners that attract traffic.

(4)   Banner Adverts

Banner advertisement can be seen everywhere on the Web. Some are hugely expensive. Many others are free, delivered as part of schemes that links thousands of web sites though banner exchanges. So we can create a banner advertisement and host it on the sites that offer free of charge basis.

(5)   Borrow a link

The company might ask about creating a reciprocal link. Both of them will quickly see the benefits of this kind of deal

(6)   Coupons stimulate sales

Currently, coupons can stimulate sales as well as persuade our audiences to come to visit our site more often

VII. FINANCIAL ANALYSIS

7.1 Project Profit

TPP has a retail store which already has loyal customers we design a web site to increase our profit from this project 5% every year because the company has no direct competitors who are doing this web site. For local competitors, they will not think about doing a web site, because they are not concerned about new technology; moreover, most of our competitors who are doing this kind of business are managing their business as family business. As a result, decision making comes from the head of each family. It might take more time to understand or make a decision to create the web site.

TPP has built a huge retail store in a new design at the heart of Roi-et. This store is full of products. The company invests for decorating this store to be a bigger shop for home improvement construction in Roi-et. The target is not only local people. TPP would like the web to be the second channel to get potential customers who come from other provinces. TPP thinks about employing more people to be the delivery men, TPP will not spend money to ship our online products to our online customers because the firm already has delivery men. In addition, hiring local people is cheaper than using a carrier service.

The expected number of the customers that will increase in the first year is approximately 500 customers. The company will get the revenue from the increasing amount of the customers. Also TPP can save the expenses of brochure and paper waste and direct mail to customers, addresses every time when we get a new promotion as seen in the table below:

Table 7.1.   Operation Cost Analysis

No	Description	Quantity	Total
1	**Cost of Manpower**		
	Salary (yearly)		
	Web design (13,000 Baht * 12)	1	156,000.00
	Programmer (18,000 Baht *12)	1	216,000.00
	Total cost of manpower		_372,000.00_
2	**Cost of Hardware and software**		
	Workstation (25,000 per set)	2	50,000.00
	Laser Printer	1	12,000.00
	Microsoft Office (15,000 per set)	2	30,000.00
	Microsoft XP (9,000 per set)	2	18,000.00
	Total cost for hardware and software		_110,000.00_
3	**Web operation cost**		
	Web design (one time charge)	1	50,000.00
	Domain name registration (600 per year)	1	600.00
	Hosting service (3,500 per yare)	1	3,500.00
	Totalh cost of web operation		_54,100.00_
	Summary of operation cost for the first year		_536,100.00_

Table 7.2 Cost of the Existing System

Cost Item	Year				
	1	2	3	4	5
Man power	372,000.00	390,600.00	410,130.00	451,143.00	496,258.00
Office Supplies cost	20,000.00	21,000.00	22,050.00	23,152.50	24,310.00
Office Equipment	50,000.00	52,500.00	55,125.00	57,881.25	60,775.31
Utility Cost	20,000.00	22,000.00	24,200.00	26,620.00	29,282.00
Total Cost	*462,000.00*	*486,100.00*	*511,505.00*	*558,796.75*	*610,625.31*

(1) The salary will increase by 5% for the second and the third year and for the fourth and fifth year will increase by 10%. However, it is just an approximate cost because the increase in salary depends on the company profits also.

(2) Office Supplies cost will increase by 5% each year in Laser printer and copy machines. The reason for increase comes from the maintenance cost for them.

(3) Office Equipment cost such as paper, printer and stationary will increase approximately by 5% each year.

(4) Utility Cost will be increase by 10% each year because if we get many transactions who visit our website, we may have to connect the Internet all the time for the second year and the following year. In the first year, we just launch our website to the market so we cannot pay for rental High Speed Internet to serve our online business. It will slightly grow the Internet investment cost so the out come for the first year would be analog call first. It will charge 5,000 baht per month to the end of the year till approximately 20,000 baht for the first year.

Table 7.3 Cost of the Proposed System

Cost Item	Year				
	1	2	3	4	5
Cost of hardware	62,000.00	-	-	-	-
Cost of software	48,000.00	-	-	-	-
Development and Installation cost	54,100.00	-	-	-	-
Registration Domain name	600.00	600.00	600.00	600.00	600.00
Hosting service	3,500.00	3,500.00	3,500.00	3,500.00	3,500.00
Maintenance	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
Utility cost	36,000.00	37,800.00	39,690.00	41,674.50	43,758.23
Total cost	*214,200.00*	*51,900.00*	*53,790.00*	*55,774.50*	*57,858.23*

7.2 Break Even Analysis

The monthly profit of retail store is approximately 2,000,000 Baht. So TPP predict the potential income will be increasing between 3% for the first year of the net profit for customer server online store. The prediction of net profit for www.homeshop101.com is increasing from 5% in the second year to 20% in the fifth year. As it shows in the table below this project is getting the profit since TPP start to launch the web because we already have our customers and products. TPP launch this web to gain more market share and potential customers in this market.

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Analysis	Year				
	1	2	3	4	5
Cost of Existing System	462,000.00	486,100.00	511,505.00	558,796.75	610,625.31
Cost of Proposed System	214,200.00	51,900.00	53,790.00	55,774.50	57,858.23
Total investment	*-676,200.00*	*-538,000.00*	*-565,295.00*	*-614,571.25*	*-668,483.54*
Annual Benefit					
Online purchase	*720,000.00*	*756,000.00*	*831,600.00*	*956,340.00*	*1,147,608.00*
Summary of Net profit from this project	*43,800.00*	*218,000.00*	*266,305.00*	*341,768.75*	*479,124.46*

Total Investing cost of the first year
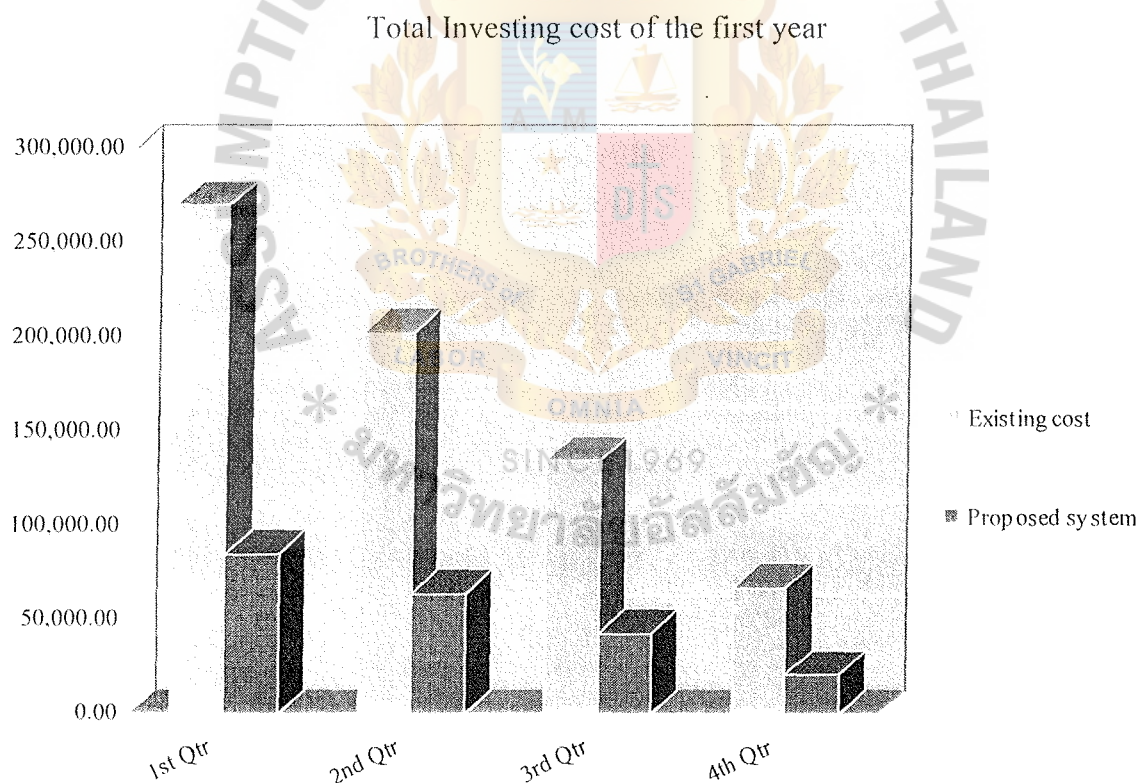
Figure 7.1.   The Graph Showing Investing Cost of The First Year.

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Breakeven Point of this project is the third quarter of the first year as shown below:
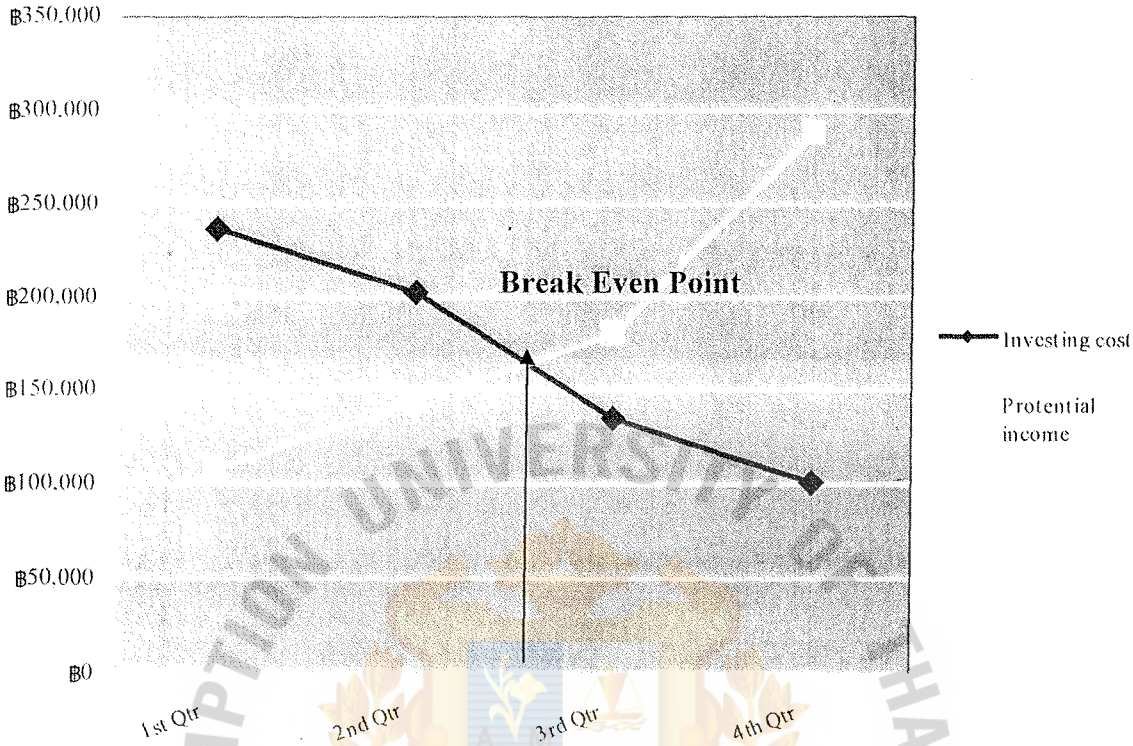
Figure 7.2   The Break Even Graph.

VIII. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The project objectives are doing business online to provide information for our customers about home improvement construction products and also create a new distribution channel for our retail shops to gain more customers and profit. At the web site called www.homeshop101.com customers will find our products and description of each product. The company also provides online purchase to make customer feel more convenient to shop online without going to our shop. The delivery is also concerned in this case because we normally have delivery service for our retail store so when TPP plan to launch the web site online so we have to think about more orders via the Internet and prepare for delivery on time. The benefits of creating this web is to reduce paper cost and advertising cost as well because TPP the limitation of the web site is unlimited to offer as much information as we would like to show to web site visitors. Moreover, by launching www.homeshop101.com it is very easy to get more customers who like to surf the Internet to find information or products that they are looking for so this is a new market channel for our business. When the site is completely e-commerce, the customers worldwide can get the benefits of purchasing online. However, this web does not have online payment because TPP launches this site to increasing sales volume and TPP already has loyal customers who have been dealing with TPP for more than 10 years so they get credit term payment and they are not getting used to the new technology about payment online. They will be afraid to fulfill financial information through the web. So the purchasing will be an offline service by letting salesperson contact customers back to confirm the order. This way TPP uses e-mail to contact its customers so it will reduce time and communication cost to reach our customers.

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The company plans to establish the web so that TPP can reach its customers more easily because new technology is growing and TPP can use e-mail to communicate instead of making a call to give product information or sending fax to customers. The number of customers will increase because of better communication. The revenue of TPP will increase from the number of the customers.

8.2 Recommendations

The knowledge of customer is also important to do online purchasing process so before launching the site, TPP should train its customers and staff how to use this service. Staff have to be ready to reply mail order of the customers as fast as they can because customers who do the online purchase expect to get better and faster feedback from the site. Otherwise, it will be the same as going to the retail shop, they would like to save there time going out.

This system, online application should have a program for managing the banner and text link since the company plans to get a lot of traffic and earn income from the banner link as well.

Furthermore, it should have a program that can track customers while they are visiting the site so the program will automatically send new promotion to members. After a period of time the company gains enough data from the user and the program is quite static. That means the web marketing strategy is useful. Therefore, programs that can track customers would help to track the popular items for the customers or help the promotion plan.

The system should develop a link with other systems in order to support its back office operation. The system should develop back office operation. The system should develop back office to be more effective and efficient.

APPENDIX A

WEB PAGE DESIGN

Web Structure for Online Customer

```
                    ┌──────────────┐
                    │  Front Page  │
                    └──────┬───────┘
          ┌────────────────┼────────────────┐
    ┌──────────┐    ┌──────────┐    ┌──────────┐
    │ About Us │    │ Products │    │Contact Us│
    └────┬─────┘    └────┬─────┘    └────┬─────┘
         │         ┌─────┴─────┐         │
  ┌────────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
  │History of  │ │ Category │ │Promotion │ │Form Mail │
  │    TPP     │ └────┬─────┘ └────┬─────┘ └──────────┘
  └────────────┘      └─────┬──────┘
                     ┌──────────────┐
                     │ Order Online │
                     └──────┬───────┘
                     ┌──────────────┐
                     │ Submit Order │
                     └──────────────┘
```
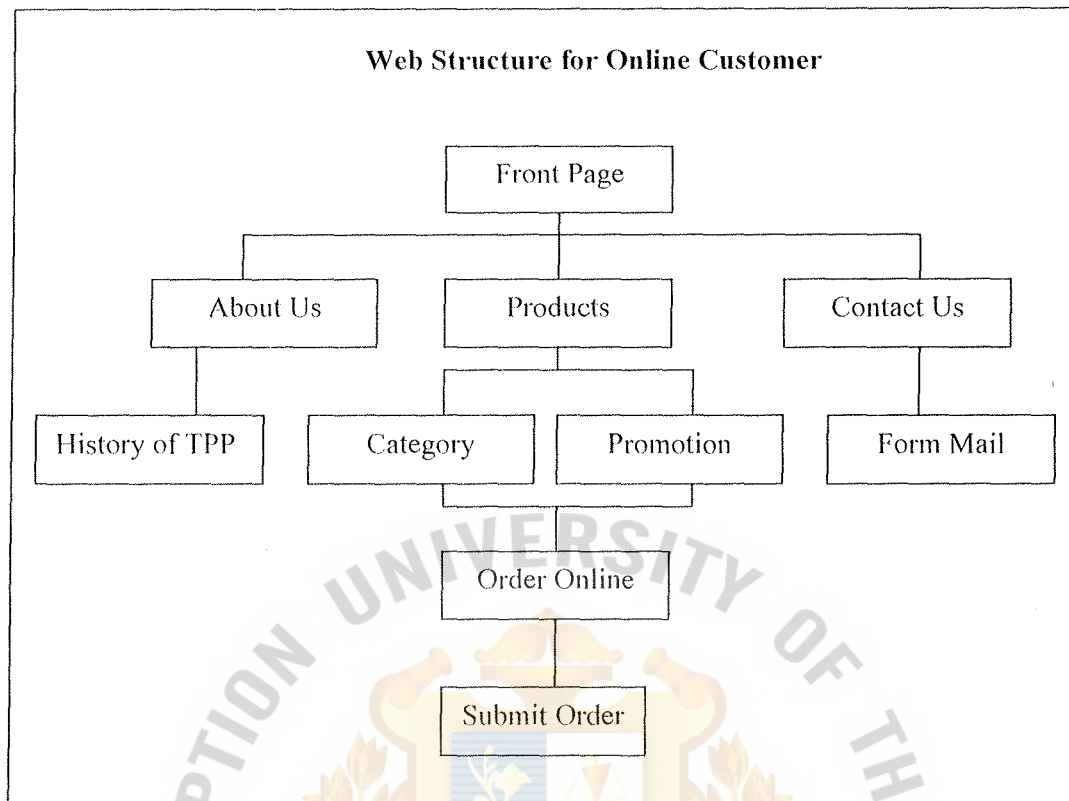
Figure A.1.   Design of Website Structure.
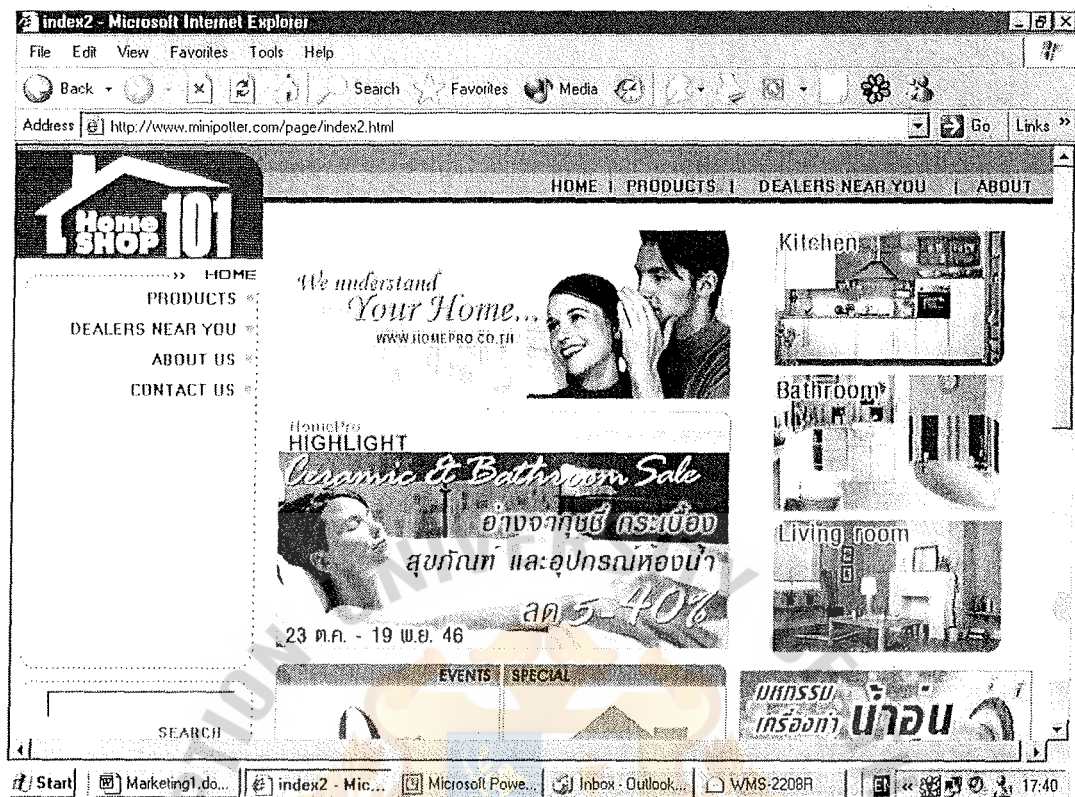
Figure A.2.   Homepage Design.
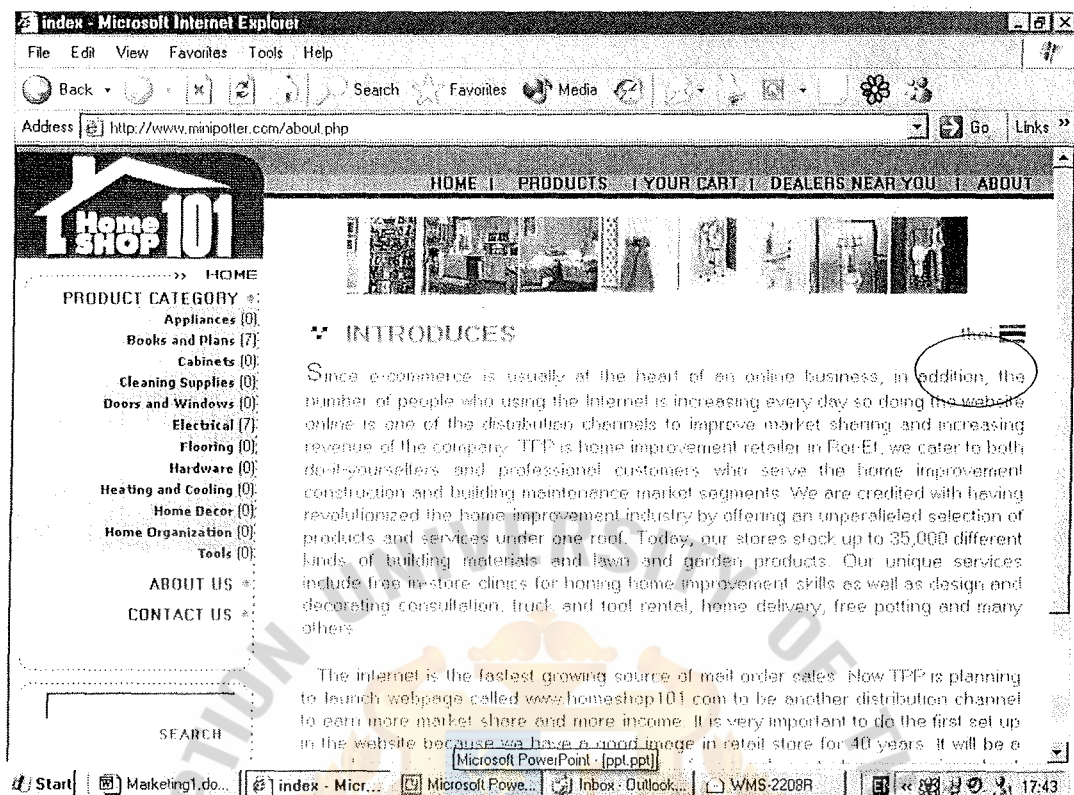
Figure A.3. Design for About Us Support Two Language.
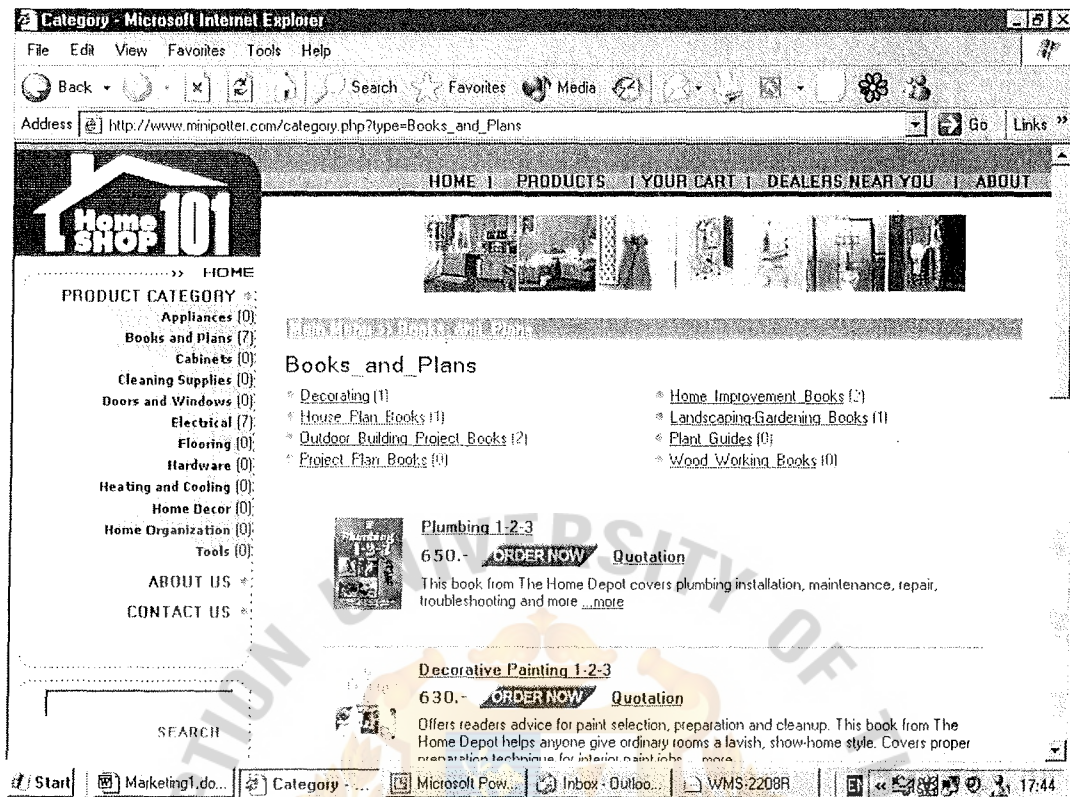
Figure A.4. Products Catalogs.

Figure A.5. Design a Quotation Form Request.

Figure A.6. Shopping Cart.

Figure A.7. Delivery Form.

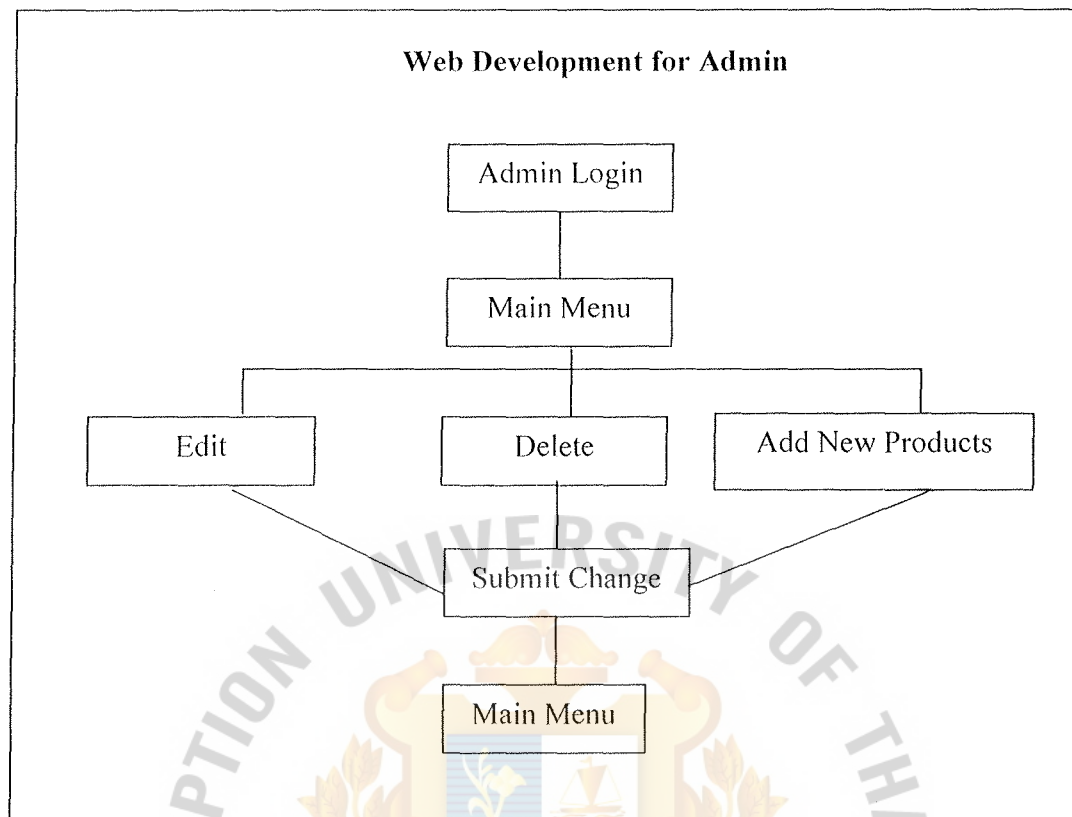**APPENDIX B**

WEB DEVELOPMENT

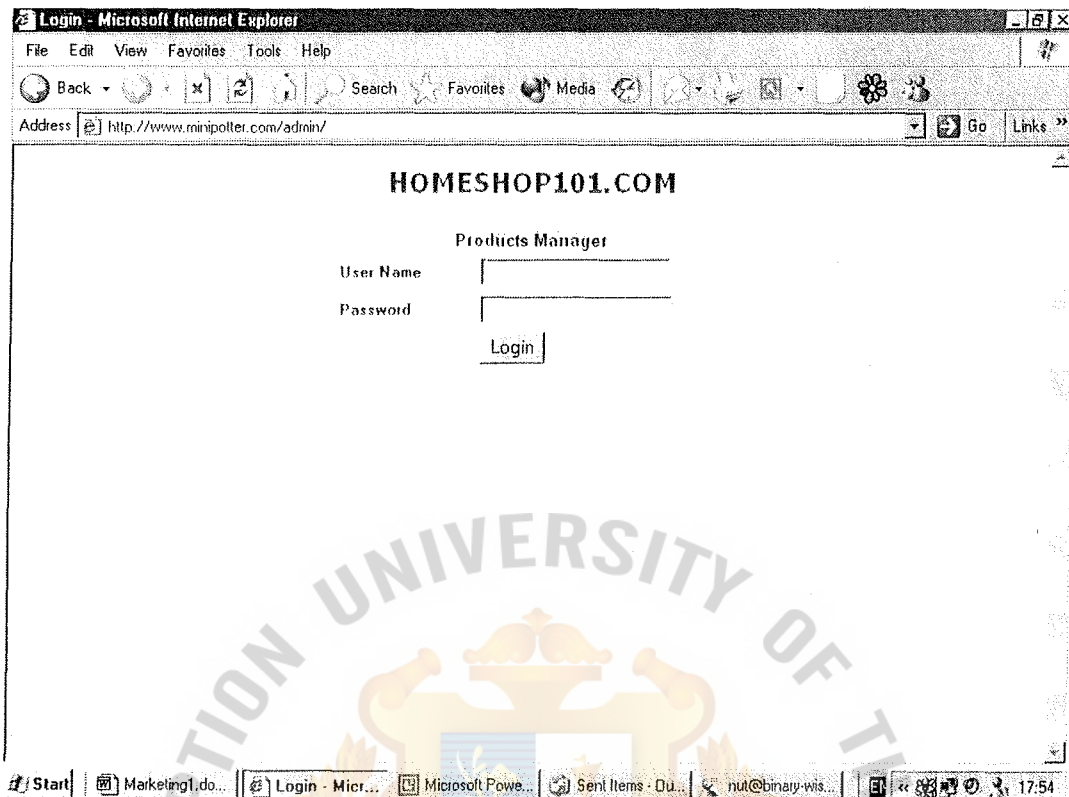Figure B.1. Design of Web Admin Develop Structure.
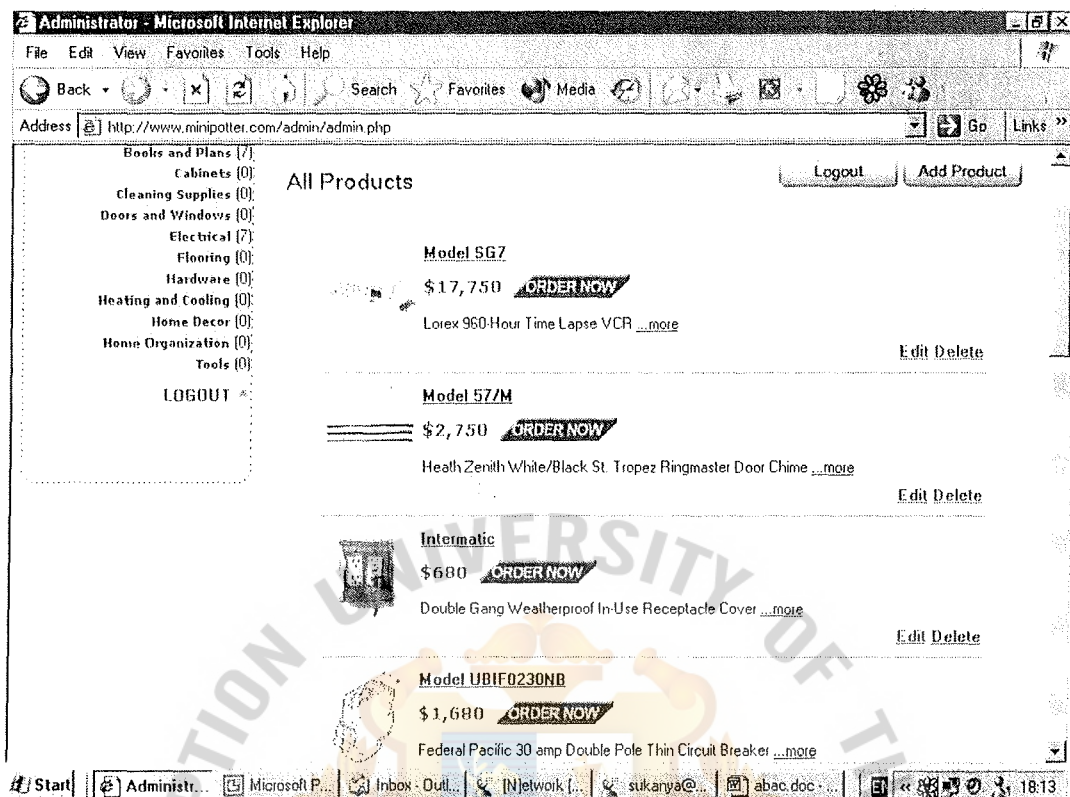
Figure B.2. Admin Signup.
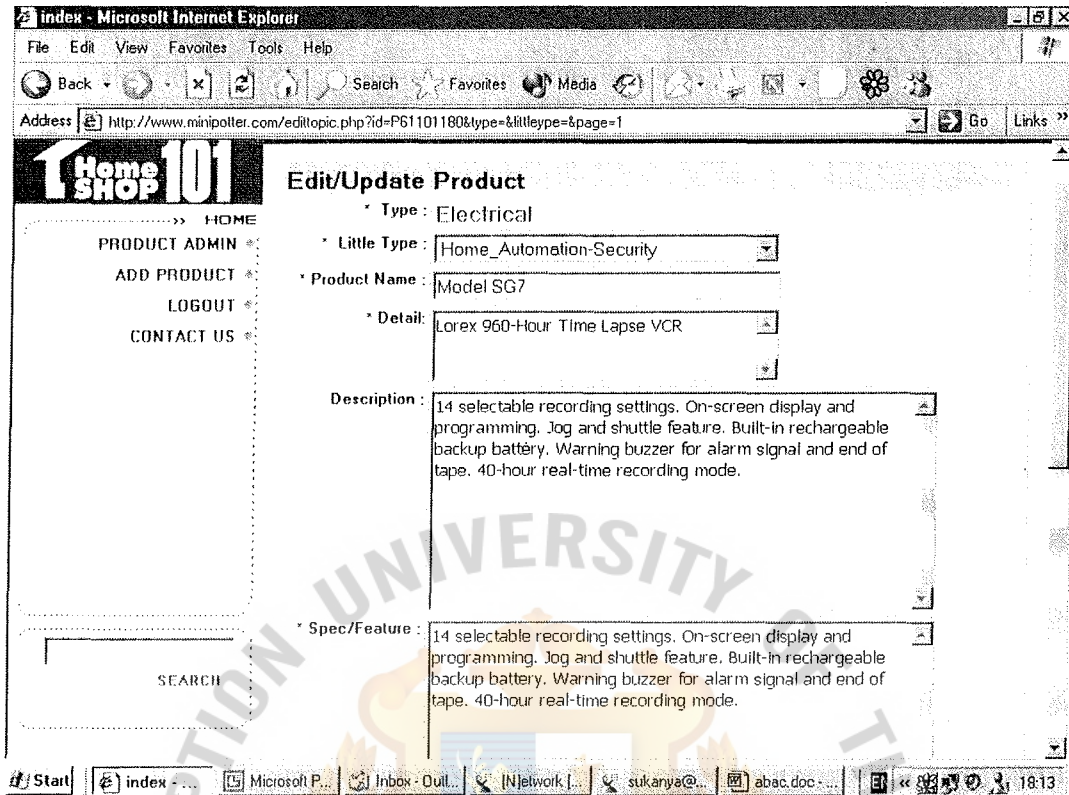
Figure B.3.   Edit and Delete Products.

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Figure B.4.   Design of Add on Product Information.

APPENDIX C

Database Structure of Web Development

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